

**METHODS AND APPARATUS  
FOR TREATMENT OF PATENT FORAMEN OVALE**

**ABSTRACT OF THE DISCLOSURE**

Methods and apparatus for treatment of patent foramen ovale (PFO) generally involve use of a catheter having treatment means at its distal end. In some embodiments, the treatment means includes one or more retractable abrasive needles used to abrade tissue adjacent the PFO to induce closure of the PFO. In other embodiments, treatment means includes an energy transmission member or one or more apertures for dispensing a fluid to contact and close the PFO. An exemplary method involves advancing a catheter device to position the distal end adjacent the PFO, exposing a plurality of abrasive needles from the catheter, advancing the needles through the PFO and/or tissue adjacent the PFO, and retracting the needles relative to the PFO to abrade at least a portion of the tissue.

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